

**THE IMPACT OF HIV/AIDS ON THE HEALTH SECTOR IN  
SUB-SAHARAN AFRICA:  
THE ISSUE OF HUMAN RESOURCES**



USAID, Bureau for Africa, Office of Sustainable Development



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Prepared by  
Linda Tawfik and Stephen N. Kinoti

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For further information, please contact:

Support for Analysis and Research in Africa (SARA) Project  
Academy for Educational Development (AED)  
1825 Connecticut Avenue, NW  
Washington, DC 20009 USA  
Tel: 202-884-8000  
Fax: 202-884-8447  
E-mail: [sara@aed.org](mailto:sara@aed.org)

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## Executive Summary

Prior to the HIV/AIDS epidemic, the health systems of sub-Saharan Africa were making a significant contribution to the steadily improving overall health status of populations in the region. There were, however, virtually no published studies, as of 1995, on how the African HIV epidemic would affect the supply, demand, and quality of healthcare. Anecdotal information and a few recent studies suggest that the epidemic's impact on the health system is devastating, particularly as it affects human resources.

This paper reviews data, studies, and other information on HIV/AIDS impacts on human resources in sub-Saharan Africa. The purpose is to guide the development of an instrument to conduct HIV/AIDS human resource assessments in the health sector. Until now, inadequate attention has been devoted to this critical step in responding to the epidemic. Such assessments can assist policy makers and advocacy groups to shape and accelerate the implementation of national HIV/AIDS policies and programs throughout the continent.

Information for this paper came from: (1) a review of abstracts, web sites, journal articles, published papers, news briefs, books, and (2) personal communication with researchers and international health program experts knowledgeable in the subject. Data came from a review of 225 abstracts presented at the XIII International AIDS Conference 2000 in Durban, South Africa; 280 abstracts from the AIDSLINE bibliographic database; and approximately 200 abstracts from the POPLINE bibliographic database.

The primary question addressed by this paper is: What is the impact of the epidemic on human resources within the health sector? Despite the scarcity of thorough analyses, anecdotal evidence in Africa suggests that ministries of health, agriculture, and education may lose one-fifth of their employees to HIV/AIDS over the next several years. Projections based on different stages of the epidemic suggest that a country with a stable 15 percent prevalence can expect that each year between 1.6 and 3.3 percent of its healthcare providers will die from AIDS. Refined analyses will require more accurate data on levels of HIV infection within geographical areas and customized projections of employee impacts.

Health staff are subject to similar risks of HIV/AIDS as the general population, with the main mechanism of disease transmission being sexual contact. Health personnel are subject to age-specific risks and the effects of income, education, and social status on their sexual behavior. Studies suggest that although occupational risk is increased in the course of providing health services, this risk is limited. There is also variation in occupational risk across professional cadres and between developed and resource-poor countries.

Besides the human tragedy, the epidemic's impact on human resources is reducing the ability of the health system to respond to the simultaneous massive, shifting demand for services. In economic terms, the impact on human resources can be divided into direct and indirect costs. Direct costs are comprised of permanent loss of labor, disability and death benefits, and rising medical aid costs. Indirect costs include absenteeism and funeral attendance, reduced productivity, a demoralized and stressed workforce, additional staff recruitment, retraining, and training of new personnel. Although difficult to quantify in monetary terms, labor effectiveness is reduced by the fear factor, the associated stress of

caring for infected patients, and insufficient HIV/AIDS-related knowledge and practices.

What are the responsibilities of a central government in responding? In seeking answers to this question, private businesses across various sectors may provide some lessons.

Health policies and programs are under pressure to respond to the epidemic's dynamic context. In countries undergoing health sector reforms, a clear trend is toward decentralization and integration. Several African countries are already experimenting with innovative models (e.g., mobile teams, training of traditional healers), along with outpatient and home-based care. Human resource assessments can provide sector-specific information for sustainable action.

Few African countries have yet undertaken impact assessments to prioritize and strategically plan for the impact of the epidemic on their personnel. With personnel costs consuming 70–80 percent of the budget of most organizations in the public and private health sectors in Africa, it is essential to collect appropriate information on human resource impacts.

Two types of tools currently exist for assessing the impact of HIV/AIDS on human resources (HR) in the health sector and the HR capacity of the sector to respond: (1) the multi-sectoral "AIDS Toolkits," incorporating the government response toolkit developed by Abt Associates Inc. and the University of Natal in South Africa; and (2) the "Human Resource Development Assessment Tool" developed by Management Sciences for Health in the U.S. By involving key actors in the assessment process, these instruments have already shown their potential to rapidly provide data to guide the development of evidence-based strategies and to facilitate the prioritization of policy and program initiatives.

In conclusion, stakeholders should undertake human resource assessments across sub-Saharan Africa to develop health sector policy and programs in the context of HIV/AIDS.

An example from South Africa demonstrates that such assessments are powerful mechanisms for creating a forum to inform and enhance advocacy, canvassing, and resource commitment for an improved response to the epidemic. An impact assessment conducted in Gauteng Province, South Africa from 1997 to 1998 mobilized political commitment and action against HIV/AIDS. This has resulted in the establishment of an interdepartmental AIDS program, a ten-fold increase in the HIV/AIDS budget over the previous year, and the development of an HIV/AIDS strategy which is currently being implemented. Results continue to be used to mobilize commitment and provide data for planning.

Specific recommendations aim to facilitate the collection of appropriate and up-to-date data on the human resource impacts in the health sector, and to promote their use at the national level for designing mitigation responses. Initially, three countries should be selected to develop and adapt the existing tools in order to collect and analyze data for planning purposes. A core set of standardized indicators needs to be developed. In one of the selected countries, a workshop should be held to develop the tool and plan for the three assessments. The "AIDS Toolkits" and the "Human Resource Development Assessment Tool" should be adapted and standardized for use at the regional, national, and district levels. Lessons learned about human resource assessments in the private sector should be shared to reinforce the paradigm that health is a production function. Results

should be communicated to key policy makers, program decision makers, and other stakeholders to ensure appropriate policies, strategies, and interventions such as: strengthened political and executive leadership in the field of HIV/AIDS; commitment of funds; and development of provider skills to meet the changing patient mix, disease profiles, and diagnostic, care, and support therapies.

As Africa scales up AIDS programs and undertakes assessments across countries to meet the challenges ahead, human resource policy and management must be considered a priority investment. It is therefore envisaged that partners will aim to establish national coordinating bodies in sub-Saharan Africa to adapt a proposed set of indicators, undertake impact assessments, and use the results to design locally-relevant interventions and actions. USAID and other partners will be expected to provide resources and technical assistance for sustainability.



## **Introduction**

Prior to the HIV/AIDS epidemic, the health systems of sub-Saharan Africa were steadily improving the overall health status of the population. This could be attributed to increased access, higher quality, and utilization of various health services. However, there were virtually no published studies, as of 1995, on how the African HIV epidemic would affect the supply, demand, and quality of healthcare. The demand for care has received the greatest attention, yet there is a clear gap in information on how the AIDS epidemic will affect healthcare personnel (Whiteside and Decosas 1995). With about 35 million Africans having been infected since the beginning of the HIV/AIDS epidemic, the impact on the health sector over the next decade will be predictably greater than in the past two decades combined (UNAIDS 2000).

Anecdotal information and a few recent studies suggest that the epidemic's impact on the health system is devastating, particularly as it affects human resources. Effects include attrition due to illness and death, absenteeism, low morale, increased demand for provider time and skills due to increasing case loads of HIV/AIDS patients, diversion of resources from care of other illnesses, budgetary and managerial inadequacies, and other effects of managing systems under stress. The scope and quality of health services becomes vulnerable unless commitment can be mobilized and resources optimized.

Until now, scant attention has been devoted to the growing need to document the impact of HIV/AIDS on the health system and current mitigation responses. HIV/AIDS impact assessments can assist policy makers and advocacy groups to shape and accelerate the implementation of national HIV/AIDS policies and programs throughout the continent.

This report reviews data, study results, and other information on HIV/AIDS impacts on human resources in the health sector in sub-Saharan Africa. It identifies gaps in our knowledge base and the strengths and limitations of available instruments. The purpose is to guide the development of a tool to conduct assessments of human resources in the health sector. These assessments can assist policy makers, advocacy groups, and program managers to shape and accelerate the implementation of national HIV/AIDS policies and programs throughout the continent.

## **Methods**

Information for this paper comes from: (1) a review of abstracts, web sites, journal articles, published papers, news briefs, books, and (2) personal communication with researchers and international health program experts knowledgeable in the subject. The literature review has targeted up-to-date studies and assessments in sub-Saharan Africa. Data came from a review of 225 abstracts presented at the XIII International AIDS Conference 2000 in Durban, South Africa; 280 abstracts from the AIDSLINE bibliographic database; and approximately 200 abstracts from the POPLINE bibliographic database.

Based on the initial literature review and briefings with the Academy for Educational Development, the opinions of other experts knowledgeable in the subject have been incorporated. Conference abstracts and published materials have been initially screened by peer-reviewing committees and publishers. A body of unpublished documents have also been reviewed because they offer direct, field-based perspectives and highlight operational issues.

## **The Impact of HIV/AIDS on Human Resources: Studies and Assessments in Sub-Saharan Africa**

### **The Health Sector Context**

HIV/AIDS affects the health sector and its human resources in two ways: (1) by reducing the supply of service providers through attrition due to death, departure from service, and reduced performance; and (2) by increasing demand for services in both quantity and complexity (World Bank 1999; Bollinger and Stover 1999). Both of these processes are associated with increased costs at a time when funding for health services is limited or diminishing. The resultant shortages of staff, supplies, and medicines have been attributed to the fact that governments in sub-Saharan Africa place a low priority on health and welfare as reflected in the national budget allocations for the health sector (WHO 1994). Another reason for the shortages is the impact of structural adjustment programs that have forced governments to cut back on national healthcare expenditures (Osborne 1997). The increased demand for healthcare created by HIV-related illnesses is heavily taxing the already overstretched public health services.

In 1997, public health spending for AIDS alone already exceeded 2 percent of gross domestic product in 7 of 16 African countries sampled, a staggering figure in countries where total health spending accounts for 3.5 percent of Gross Domestic Product (GDP). In the mid-1990s, it was estimated that treatment for people with HIV consumed 66 percent of total health spending in Rwanda and over a quarter of health expenditures in Zimbabwe (UNAIDS 2000). As the AIDS epidemic increases costs, it reduces supply in all other sectors. AIDS will increase the share of healthcare in national expenditure (World Bank 1999).

Few countries have fully understood the epidemic's impact on human resources in their health sector. AIDS-related illnesses and deaths of employees increase expenditures and reduce revenues in both the public and private sectors. Information is needed on the supply of healthcare which is being impacted by external and internal factors, such as loss of staff through HIV/AIDS-related deaths, increased out-migration of highly trained staff, or reduced training outputs of universities. A lack of rigorous study in this area represents a key gap in information needed to design better mitigation strategies.

Before discussing specific findings from human resource studies, several issues contributing to the changing landscape of health service impacts should be considered. These issues are related to the "crowding out effect" by HIV/AIDS patients; safe blood supply and medical procedures; the exploding tuberculosis epidemic; voluntary counseling and testing (VCT); and the provision of new HIV/AIDS therapies.

Health facility assessments suggest that the epidemic is crowding out patients suffering from conditions which are seemingly less severe than HIV/AIDS, thus denying them their right to care. In South Africa, which is experiencing the fastest growing HIV/AIDS epidemic in the world, patients are turned away from hospitals due to limited beds (Russell 2000). Kenya has seen increased mortality among HIV-negative patients, who are being admitted at later stages of illness (UNAIDS 2000). From 1988 to 1992, the average number of people admitted per day to a Nairobi hospital who were *not* infected with HIV decreased by 18 percent while the number who were HIV-infected more than doubled. The severity of the illness suffered by non-HIV-infected patients rose. Their mortality rate increased from 14 to 23 percent while the mortality rate of hospitalized HIV-infected patients remained stable during that same period (World Bank 1999).

In poor countries, where blood screening and needle sterilization were lacking before the epidemic, resources needed to maintain the quality of care in the face of AIDS can be substantial (World Bank 1999). Even with safe blood banks, a transfusion can infect recipients with hepatitis B or HIV through exposure to infected equipment. Transmission risks and exposure to opportunistic infections increase under conditions of crowding, where needles and other instruments are not always sterilized, and where providers lack rubber gloves or even soap. Although one study suggests that occupational risk among health staff is minimal from injuries on duty, for ethical and financial reasons staff need to have safety protocols enforced (de Villiers 2000).

The exploding tuberculosis (TB) epidemic in countries most heavily affected by HIV has human resource implications. TB has become the leading cause of death among people with HIV infection, accounting for one-third of AIDS deaths worldwide. The World Bank estimates that 25 percent of the HIV-negative persons dying of TB would not have been infected with the bacillus in the absence of the AIDS epidemic. Each of these new TB infections represents increased demand for service providers trained in its management. Many national TB programs may be forced to use a community-based model<sup>1</sup> whereby health workers supervise TB treatment. The current model, which involves hospitalizing most patients for at least the first two months of therapy, is overwhelming hospitals (Raviglione et al. 1997). Recent clinical trials have shown that TB preventive therapy can reduce TB and HIV-associated morbidity and mortality cost-effectively (Bell et al. 1999).

The introduction of voluntary counseling and testing (VCT) for HIV/AIDS is increasingly being adopted as an important prevention and control strategy. Unfortunately, access to VCT remains limited. Most HIV testing is hospital-based and reserved for those presenting with late-stage disease. While much of health providers' training has been in disease prevention, few have been trained to counsel people with the disease or to treat HIV-related symptoms and opportunistic infections, even within higher level facilities. Symptomatic treatment that is provided is often guided by non-HIV specialists who do not recognize, much less attend to, other HIV-related clinical manifestations (Gilks et al. 1997; Schietinger and Sanei 1998). Same-day test results are generally not available, so a significant proportion of those who travel a long way from home do not follow-up to obtain their test results (Makhubele 2000; Schietinger and Sanei 1998). Even after testing people for HIV, some health providers simply discharge clients without telling them their diagnosis because of the belief that nothing can be done for them. The supply and

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<sup>1</sup> Directly Observed Therapy, Short-course (DOTS)

deployment of health service personnel who provide effective counseling and testing needs to be determined relative to the service load and needs.

Making changes and maintaining subsequent high levels of service performance cannot be achieved in any organization without good human resource management (Martinez and Martineau 1998). With health reforms and the introduction of new prevention, care, and treatment approaches to the epidemic, human resource planning is a larger task than producing the numbers and types of health staff to match the health services. A study from Cote d'Ivoire, for example, suggests that the introduction of new therapies will involve systemic responses for client follow-up and appropriate counseling. In response to the inequity in providing antiretrovirals between the developed countries and resource poor countries, the Ministry of Health of Cote d'Ivoire and UNAIDS launched an initiative to provide antiretroviral therapy and other AIDS-related therapies at reduced cost to HIV/AIDS patients. Criteria for enrollment included patient's clinical status, biologic parameters, and the ability of the patient to pay for drugs (with or without national subsidies). Assessment results indicated, however, that since the initiative began in 1998, 40 percent of 1,874 patients presenting for eligibility screening did not return (Djomand et al. 2000). Focused assessments can provide useful information for understanding the extent to which counseling by health service personnel influences a person's probability of returning for therapy. On the broader perspective, it is has become clear that an expanded response to the HIV/AIDS epidemic requires an integrated approach combining the core interventions that include primary prevention, prevention of mother-to-child transmission linked to voluntary and confidential counseling and testing (VCT), treatment of STIs, improved blood supply, treatment of opportunistic infections, and care and support of people living with HIV/AIDS.

### **Impact of HIV/AIDS on Human Resources in the Health Sector**

What evidence is available on the impact of the epidemic on human resources within the health sector? Virtually no hard data has existed until very recently. Despite the scarcity of thorough analyses, anecdotal evidence in Africa suggests that the health systems may lose one-fifth of their employees to HIV/AIDS over the next several years (USAID 1999). Given the variation in the severity of the epidemic in different geographical areas, projections have been developed based on specific HIV/AIDS prevalence rates. Demographic profiles of health personnel are required to develop more refined analyses of health sector impacts.

Like the general population, healthcare workers may become infected with HIV as a result of their personal sexual behavior (World Bank 1999). Health service personnel also face additional occupational risks from handling non-sterile injecting equipment or accidental exposure to blood or serum. This risk is generally smaller than the risk from sexual contact, although there is variation in occupational risk across professional cadres and between developed and resource poor countries. The HIV seroconversion risk among surgeons in tropical Africa may be 15 times higher than in developed countries (Consten et al. 1995). A study conducted in a South African hospital investigated the potential for HIV transmission occurring as the result of sharp instrument injuries, the major cause of injuries on duty. Of one hundred injuries on duty reported over a two-year period, 41 percent occurred among nurses, 38 percent among cleaners, and 6 percent among administrators. Cleaners comprised 16 percent of the total personnel of the hospital but reported 38 percent of all injuries on duty. Nearly half of reported injuries were needle-

stick related. The average period of leave after injury was four days (range 1- 40 days) (de Villiers 2000). In Senegal, an impact assessment showed that, although 91 percent of surveyed health workers recognize that body fluids contamination is risky for HIV or hepatitis transmission, only 25 percent take necessary precautions. The additional risk of HIV/AIDS encountered by health personnel may thus depend on their adherence to proper protocols and procedures, as well as on the availability of sterilization equipment, surgical power tools, and supplies.

HIV/AIDS risk is influenced by age, gender, and geographic location. Moreover, prevalence depends on the effects of income, education, and social status on sexual behavior. One of the rare impact assessments on human resources in health, conducted in Botswana, suggests that the age profile of health workers may differ significantly from that of the general population aged 20-64. Moreover, one major feature of the demographic profile of health workers in Botswana is that women outnumber male health workers by a ratio of 1.9 to 1 with 4,829 males and 9,387 females (Abt Associates South Africa 2000). Hence, human resource plans ideally should incorporate projected staffing losses based on demographic and socioeconomic factors.

A study of HIV prevalence in Africa suggests that doctors and nurses are at least as likely to become infected as other people in the general population (Buve et al. 1994). Results of another study demonstrating the impact of HIV/AIDS on HR in the health sector are presented in Table 1. In this study, data was collected on mortality among female nurses at two hospitals in Zambia due to a great concern within the Ministry of Health about a perceived increase in absenteeism and mortality among health personnel. Based on an examination of death certificates, the observed increase in mortality was attributed largely to HIV infection. The seroprevalence rates from sentinel surveillance sites indicate that, in 1990, the HIV seroprevalence rates in pregnant women were 24-25 percent in Lusaka and 30 percent in the periurban areas of Solwezi; these rates correspond closely to those of the nurses in this study.

**Table 1: Mortality rates among nurses, Zambia, 1980-1991**

	1980-1985	1986-1988	1989-1991
Hospital A			
Number of deaths	1	1	9
Mortality rate (per 1000)	2.0	3.0	25.5
Hospital B			
Number of deaths		3	8
Mortality rate (per 1000)		14.5	28.2
Total			
Number of deaths	1	4	17
Mortality rate (per 1000)	2.0	7.4	26.7
95% confidence limits	(0.05-11.0)	(2.0-18.8)	(15.5-42.7)

Source: Buve A, Foaster SD, Mbwili C, Mungo E, Tollenare N and Zeko M. 1994. Mortality among Female Nurses in the Face of the AIDS Epidemic: A Pilot Study in Zambia. *AIDS* 8(3): 396.

#### *Direct Costs: Loss of Labor, Rising Medical Costs, Disability, and Death Benefits*

In economic terms, the impact on human resources can be conceptualized in terms of direct and indirect costs. Direct costs are comprised of permanent loss of labor, rising medical aid costs, and disability and death benefits. One can roughly estimate the permanent loss of labor, assuming that health personnel are subject to the same risks as the general population. Results should be interpreted carefully, for as an assessment from Botswana has shown, attrition rates are subject to the demographic composition of human resources, as well as to geographical location.

Table 2 projects the proportion of healthcare providers who will die from AIDS each year, assuming a constant rate of HIV infection given a 10-year or a 5-year median time from infection to death. A country with a stable 15 percent HIV prevalence, for example, can expect that between 1.6 and 3.3 percent of its healthcare providers will die from AIDS annually. This attrition from AIDS deaths may substantially increase the cost of healthcare. Assuming that labor costs are at least half of total healthcare costs, and training or recruiting a replacement worker requires a one-time expenditure equal to the worker's annual salary, then a 7 percent increase in attrition would increase total costs in the health sector by at least 3.5 percent (World Bank 1999).

There are slight additional risks of HIV infection in the context of patient to staff HIV transmission. Although medical care-related HIV transmission comprises a small proportion of HIV transmission in sub-Saharan Africa (estimated at less than 0.4 percent of total incidence in Tanzania's Mbeya Region), districts should ensure safe blood supplies as well as safe injection and sterilization practices. This will require health personnel, especially technicians, to be adequately trained in safe blood supply techniques, safe injection techniques, and sterilization practices. The introduction and monitoring of protocols for quality service provision should be part of a minimum set of standards of protection for health personnel.

**Table 2: Deaths per hundred adults caused by a constant rate of HIV infection**

HIV prevalence	Median time of death in years	
	10 years	5 years
Percent		
0	0	0
5	.53	1.11
10	1.05	2.22
15	1.58	3.33
20	2.11	4.44
30	3.16	6.67
50	5.26	11.11
100	10.53	22.22

Adapted from: World Bank. 1999. *Confronting AIDS: Public Priorities in a Global Epidemic*.

Scaling up the safety level can be costly, but ignoring the importance of additional hygiene, sterilization, and blood screening could be substantially more costly in human and financial terms in the long run.

Ministries and local governments need to assess the impact of HIV/AIDS on their capacity to deliver services and on the demand for these services. Hardest hit sectors will then need an emergency plan to replace the lost manpower and to meet the demand for services. Even without the added demand for HIV/AIDS-related services, the doctor-to-population ratio ranges from 1:673 in the Republic of South Africa to 1:35,051 in Ethiopia for the year 1996. For areas of limited coverage, such as Mozambique, the loss of one or more health personnel could be catastrophic (World Bank 1999).<sup>2</sup>

Employee benefits are perhaps the most obvious area in which HIV/AIDS will impact on health sector human resource costs. A prerequisite for achieving a minimum level of acceptable performance is an adequate reward package, such as a living wage, job security, pensions, sick and maternity leave, etc. For government-employed personnel these conditions of service should be sufficiently better than those offered in the private sector (to offset the higher salaries offered) and include free or preferential health services to the whole family (Martinez and Martineau 1999). Assessments should attempt to address medical schemes to ensure that care is cost-effective and affordable given the scale of the epidemic. To manage the benefit schemes for employees with HIV/AIDS it will be important to: (1) limit the increases in cost to affordable levels for the employer and employees; and (2) ensure that available resources are used as effectively as possible (Abt Associates South Africa 2000).

Impact assessments will need to fill the following gaps in the knowledge base concerning the impacts of the HIV/AIDS on human resources:

<sup>2</sup>Mozambique has the lowest number of doctors per capita in Africa. Source: AIDS Analysis Africa. 1997. Country Profiles: Mozambique 7(5) Feb/Mar. In "The Economic Impact of AIDS in Mozambique" 1999.

- What are the prevalence, sickness, absentee, attrition and death rates among health sector staff by specific cadre (e.g., doctors, nurses, paramedical staff, health managers, and private practitioners)?
- What is the risk profile of employees in terms of age, gender, geographic, and socio-economic origin?
- What are the associated risk factors among specific cadres of health personnel?
- Are workplace policies in place to deal with needle-stick injuries, chronic sickness, and repeated absence for other reasons associated with the epidemic?
- Are staff adequately informed and educated to cope with the demands that will be placed on them (e.g., fear of infection)?
- If there are certain categories of staff (e.g., doctors, nurse-midwives) suffering attrition, how will this impact provider-to-patient ratios?
- Is there a human resource plan to respond to staff turnover relative to the service delivery needs at various levels in the health system?

### *Indirect Costs*

Indirect costs can be a more significant contributor to the impact of HIV/AIDS on human resources than direct costs. Some of these costs may be obvious financial costs while others will be experienced through decreased efficiencies. Indirect costs of human resource impacts include absenteeism and funeral attendances, reduced productivity, a demoralized and stressed workforce, additional staff recruitment, and training and retraining of new personnel. Health policies can play a key role in responding to these human resource impacts. Work-based programs (e.g., to improve safety standards) can mitigate the stresses and improve productivity.

First, lost work days due to HIV/AIDS have profound effects on the supply of human resources. Absenteeism begins before people develop full-blown AIDS. Reports indicate that the average person living with AIDS can be absent from work for up to 50 percent of their final year of life. Calculations have shown that in Botswana, if the average person working in the health sector uses just 60 days of sick leave in their last year of life, the public health sector could lose around 23,000 work days to AIDS in 2003 and 31,000 in 2005. Using a full six months of sick leave, these losses could be in the magnitude of 42,500 work days in 2003 and 57,000 in 2005. Additional absenteeism for funerals and care of dependents is likely to be considerable (Abt Associates South Africa 2000).

The case of Swaziland demonstrates a striking case of the interrelationship between human resource policies, absenteeism, productivity, staff recruitment, and training. As of the mid-1990s, public sector staff in Swaziland could receive one year of continuous sick leave with the first six months on full pay and the second on half salary. They could not be replaced until their claim for benefits expired. Because economic structural adjustment programs keep many institutions from replacing staff on sick leave, such policies, combined with absenteeism, reduce productivity significantly. A lengthy illness or death

of even a few healthcare workers can create severe supply shortages (Anonymous 1995).

Secondly, labor effectiveness is reduced by the fear factor, by the associated stress of caring for infected patients, and by inadequate HIV/AIDS-related knowledge and practices. The underlying causes of ineffective performance include fear of contracting the disease from patients, social contamination (ostracism and stigma of working with affected patients), discomfort with the sexual dimensions of the disease, and a sense of professional inadequacy due to high mortality rates. Perhaps the main cause of stress is the realization that they share the risks that resulted in the infection of patients in the first place.

Thirdly, health workers also have to cope with role expansion, having to bear responsibilities in situations for which they are untrained. This stress is exacerbated when patients are from the same community and may be more pronounced when patients are friends or relatives. Health personnel often do not have the psycho-social support capabilities which are important to deal with patients' emotional traumas. Some may feel a great social distance from clients and patients who are commercial sex workers or individuals with sexually transmitted diseases. A Tanzanian study found that 96 percent of health workers at one hospital did not sympathize with infected sex workers, homosexuals, or drug abusers (Masini and Mwampeta 1993). Staff may have cultural, social, or moral objections to the advice that they are supposed to convey, e.g., the use of condoms. Moreover, personnel may inadvertently be blamed for shortages of drugs and equipment resulting from the scale of the epidemic and system impacts (Drysdale et al. n.d.).

Good performance requires, among other things, a willingness to perform well and the requisite skills to do the job (Martinez and Martineau 1998). Several studies have shown that the effectiveness of HIV/AIDS counseling and prevention work on hospital wards depends on the health workers' knowledge and attitudes regarding HIV infection (Mungherera et al. 1997; Horsman and Sheeren 1995; Ngoumo et al. 1995; Louw et al. 1994). The Tanzanian study on the societal response, discrimination, and stigmatization of HIV/AIDS has indicated a great deficiency in the provision of quality care due to inadequate knowledge and negative attitudes among staff. Forty-six percent (46%) of health personnel sampled in one hospital had no education and no counseling skills for AIDS prevention. Fifty-eight percent (58%) said that confidentiality of HIV testing results is not practiced although 80 percent felt it should be (Masini and Mwampeta 1993). To mitigate the impact of the epidemic on health system staff, programs can provide training to improve knowledge and shift attitudes, as well as provide and care for HIV-infected health personnel.

Training health workers and protocol development for the epidemic can require specific targeting by cadre. A cross-sectional study of 155 physicians and nurses at the main national referral hospital in Uganda revealed that 80 percent of physicians compared to 59 percent of nurses referred patients for HIV counseling (Mungherera et al. 1997). In another Ugandan study of 56 physicians and nurses, 40 percent of doctors and 24 percent of nurses reported they never talk to inpatients about HIV. Twenty percent of these providers reported they are frightened of taking care of HIV-infected patients (Mungherera et al. 1996). Because individuals respond to perceived risk rather than actual risk, perception of risk may be increasing the cost of care (World Bank 1999).

Assessment tools should address questions related to the indirect costs of the epidemic:

- Does the human resource management capacity of health organizations need to be strengthened to cope with the crisis?
- What policies exist for absenteeism, sickness, and care of dependents?
- What specifically is causing stress among health personnel (e.g., increased workloads, high mortality among patients, the illness of family or colleagues)?
- Have stresses such as workplace exposure to HIV or exposure of infected staff to opportunistic infections been addressed?
- Have disease and psycho-social impacts on all relevant staff (e.g., including dieticians, oral health, and laboratory staff) been considered?
- Do health workers have correct knowledge about casual contact with patients?
- What support systems are available to health personnel?
- Are safety, care, and support protocols clear and enforceable for all concerned staff?

### **Lessons Learned from Private Sector Firms about Human Resource Impacts**

What are the critical human resource responsibilities that a central government must attend to if it wants its health system and reforms to succeed? Private sector businesses may provide some lessons in seeking answers to this question (Kolehmainen-Aitken 2000). An increasing number of analyses are appearing from the private sector as forward-thinking companies in high HIV prevalence countries begin to look beyond prevention to the inevitable dent that the disease will make in their workforces and profits.

AIDS-related illnesses and deaths of employees increase expenditures and reduce revenues. For this reason, firms have begun to monitor the direct loss of staff and quantify impacts of HIV/AIDS on associated healthcare costs, absenteeism, benefits and compensation, labor turnover, training, and recruitment. As in the public sector, private sector businesses also are beset by (1) the increased attrition of workers who become infected with HIV, and (2) additional risks imposed on some types of workers by virtue of their profession. Private sector employees, like the general population, are most likely to become infected with HIV as a result of sexual contact. Certain occupational categories like mining and trucking have been identified as particularly high risk due to associated life-style factors related to migration and mobility.

The impact of HIV on companies' workforce in developing nations is not well understood. Few attempts have yet been made to quantify the effects of HIV/AIDS morbidity and mortality on the profitability of private sector firms (Thea et al. 2000). Nevertheless, studies and assessments carried out by private businesses to date may offer lessons for planning assessments in the health sector. Tools that have been developed to assess the costs to companies of AIDS among employees could potentially be adapted for use in the health sector. The Harvard Institute for International Development, for example, has developed a tool for assessing the economic impact of AIDS on developing country firms. The tool demonstrates the types and sequence of workforce costs which

AIDS is likely to impose. Such tools could be used to demonstrate impacts as the health sector becomes viewed more as a health production function.

In a study to examine the impact of AIDS-related costs on human resources carried out among four Kenyan firms, the most significant factor in increased labor costs was absenteeism due to HIV or AIDS, which accounted for 52 percent of total AIDS-related costs (Roberts and Rau 1994). In terms of cost per employee, the companies spent on average US\$ 30 in 1994. Although this figure may seem insignificant, the impact may be profound as time goes on. The study estimates that between 1992 and 2005, the cost of HIV/AIDS is expected to increase from US\$ 20,339 to US\$ 48,402 in heavy industry; from US\$ 67,183 to US\$ 163,685 in transportation; and from US\$ 285,847 to US\$ 866,217 on sugar estates. As AIDS is likely going to increase labor costs and reduce company profits, appropriate prevention measures should be implemented at the workplace.

According to another survey of commercial farms in Kenya, illness and death have already replaced old-age retirement as the leading reason why employees leave service. Retirement accounted for only 2 percent of all employee drop-out by 1997. A quarter of the workforce was infected with HIV on one sugar estate in this study. Direct cash costs related to HIV rose dramatically, company spending on funerals increased five-fold between 1989 and 1997, and direct health expenditure increased ten-fold. The estate's managers reported greatly increased absenteeism, lower productivity (a 50 percent drop in the ratio of processed sugar to raw cane between 1993 and 1997), and higher overtime costs as workers were paid to work extra hours to fill in for sick colleagues. A flower farm in another part of the country experienced a similar ten-fold rise in spending on employee health costs from 1985 to 1995. This expenditure, which was estimated at over one million US dollars for a company with 7,000 employees, diminished profits so heavily that the owners sold the company (UNAIDS 1999). According to one Ugandan study (Government of Uganda 2000), the HIV/AIDS epidemic has more than doubled the expected number of deaths among the workforce of some enterprises. Workplace prevention programs may be a cost-effective response.

Private sector employers are starting to reconsider the benefits they are able to pay if employees sicken or die in service. This has led to a dilemma of benefit packages and insurance payments. Many organizations are increasingly hiring staff on casual or rolling short-term contracts, thus escaping the need to pay disability, death, or other benefits. A significant number of companies are working together with the insurance industry to work out policies and benefit packages that meet the needs of terminally ill people and their families without bankrupting the companies themselves. There are two points worth noting. First, only a tiny fraction of people in countries hard-hit by AIDS are covered by formal health insurance and benefits schemes. Secondly, even those who are covered will inevitably see health and death benefits decline significantly because insurance companies and employers will pass on some of the rising costs to beneficiaries and employees, including those who are not HIV-infected (UNAIDS 1999).

On the positive side, according to one financial service board in the insurance company industry in South Africa, "it may be more cost-effective overall for an employer to supply antiretroviral drugs than to bear the increased costs of recruitment, training, and payment of healthcare, disability, and death claims." This could completely change the impact of HIV/AIDS on the insurance industry if implemented (Andrew 2000). If other industries

follow this logic, and pharmaceutical companies lower their prices for new therapies, human resource planning will certainly move forward in a new direction.

Many businesses have started prevention programs in the workplace to try to protect their investment in human capital. Workplace activities for AIDS prevention can potentially reach an enormous number of employees in a cost-effective manner. AngloGold, the largest gold-mining company in South Africa, hands out AIDS leaflets in various languages to miners and their girlfriends, and hires specialists to train “peer educators” among miners who teach other miners about safe sex, as well as commercial sex workers (CSWs) who teach other CSWs. South African Breweries conducts role-playing exercises to show how fast infection can spread. Both AngloGold and South African Breweries offer voluntary HIV testing and counseling, and free treatment for other sexually transmitted diseases (The Economist 2001).

### *Lessons Learned from Private Sector Firms*

There are some key lessons learned from the private sector:

- Mathematical models developed on the economic impact of AIDS on developing country firms and private sector research frameworks could potentially be used or adapted to demonstrate impacts on the health sector. Such examples can reinforce the paradigm that health should be viewed as a production function.
- Studies in Kenya have shown that the most significant factor in increased labor costs, out of total AIDS-related costs, was absenteeism due to HIV or AIDS. While the absolute cost per person may initially appear not to be significant, the impact may be profound as time goes on.
- Variations in HIV status by type of industry, employees’ income levels, residence, age, and sex of employees suggest that organizations should think strategically to target high-risk categories for prevention, diagnosis, care, and support.
- The HIV/AIDS epidemic has more than doubled the expected number of deaths among the workforce of some enterprises. Workplace prevention programs may be a cost-effective response. This is a weak area in the public health sector.
- Organizations can work together with the insurance industry to work out policies and benefit packages that optimally serve the interests of all stakeholders, especially

HIV/AIDS patients, in order to improve access to services. This could be extended to the public sector.

- It may be more cost-effective for an employer to supply new therapies (e.g., antiretroviral drugs) than to bear the increased expenditures of recruitment, training, and personnel illness, disability, and death claims.
- With the evidence of human resource impacts supported by data, business managers, researchers, and policy makers can more accurately understand the relative impact of AIDS on different production units. Data can be used to improve both company and government strategic planning capabilities.

The private sector healthcare system has not moved fast in this area.

## **Health Reforms: Their Relevance and Impact in Strengthening Human Resources for an Expanded Response to HIV/AIDS**

Healthcare reforms require fundamental changes to the ways in which the health workforce is planned, managed, and developed within national health systems. While issues involved in such transition remain complex, their importance and the need to address them in a proactive manner are vital for reforms to achieve their key policy objectives (Martinez and Martineau 1998). Data are necessary to understand how these reforms will affect, both positively and negatively, the existing human resource capacities and, more importantly, to determine the changes needed, depending on the types of reforms that are implemented.

A clear trend in health reform is toward integration and decentralization. Integrating programs for HIV/AIDS and sexually transmitted diseases with family planning/ maternal and child health programs is a potentially cost-effective response to the epidemic. The rationale is based on the fact that family planning and maternal and child health services have, over the past 30 years, developed a solid infrastructure in sub-Saharan Africa which can be used for HIV/AIDS and STD control programs as well. The decentralization strategy aims to provide HIV/AIDS care and support to the many families who can afford neither the time nor the cost of seeking care in higher-level facilities (Schietinger and Sanei 1998). Health reform initiatives in countries such as Ghana and Zambia have decentralized services to the local level and spawned cost-recovery programs to increase the local availability of healthcare (Gilks et al. 1997). The extent to which HR management has been linked to these reforms, though not well documented, is clearly limited.

There is a distinction between decentralization of services and decentralization of decision-making powers. Decentralization of services occurs where people living with HIV/AIDS can receive drugs and treatment in local clinics and be cared for at home. The decision-making component of decentralization is an issue of authority and power; it has only begun to be realized in some countries. In areas where the transition of power has been delegated beyond the central ministry to local authorities, new management systems (e.g., recruitment, performance appraisal, local pay bargaining) need to be developed. New roles will need to be determined at the regional/provincial/ district level as reforms are implemented. These new roles may need to change several times during the process of

reform as systems become established (Martinez and Martineau 1998). Impact assessments should thus provide information on how reforms are progressing, along a continuum from centralized to local decision-making authority, to effectively guide policy and program development.

Health reforms are generally aimed at expanding successful interventions and bringing them closer to the people. In South Africa, a 1992 study of the appropriate levels of care for HIV/AIDS patients found that 60 percent of visits could safely be treated at the primary-care level. As the severity of HIV infection increased, the percentage of patients who could be treated at a primary-care level fell ( $p < 0.0001$ ) and that of patients requiring tertiary care increased ( $p < 0.0001$ ) (Metrikin et al. 1995). Reforms grounded in research-based evidence should be closely linked to human resource management. This task will include:

- liaising more closely with other ministries, such as education, local governments, and finance concerning the balance between salary and non-salary costs and changes to established health posts;
- liaising and negotiating with professional bodies and unions, especially where the reforms involve changing conditions of service, job roles, or initial training;
- overseeing changes in organizational structures and staffing levels from a human resource perspective to ensure that essential parts of the system continue to function (Martinez and Martineau 1998).

Despite trends in integrated and decentralized health service packages, evidence is not overwhelmingly clear what this package should be. There are mixed results on whether home care is more cost-effective than hospital care for HIV/AIDS patients. Preliminary results from a study of the costs of home-based care in Zambia indicate that community-initiated care is considerably cheaper than hospital-initiated alternatives. The average duration of a visit by a healthcare worker was typically longer with the community-initiated home care compared to hospital care (Chela et al. 1994). However, evidence from a representative review of community and home-based care programs in Zimbabwe has shown that most home care programs are more expensive than hospital care. While the cost of personnel may be cheaper for home-based care, 56-75 percent of the total cost per visit is spent on getting the health worker to the patient. The home-based care programs studied generally achieved limited coverage; coverage rates of 2-4 percent of actual need are not uncommon. Overall, results of this study indicate that the cost of one home visit is equivalent to between one and three days in a hospital. These apparent contradictions in study findings may be explained in several ways. First, cost-effective approaches to home care that achieve sufficient coverage and provide adequate care are feasible in urban areas, but require careful planning and monitoring in rural areas and other resource constrained settings (Kerkhoven et al. 1999). Secondly, various study methodologies or analytic approaches may yield different results. This emphasizes the need for most locally relevant and well-designed operations research results to determine the intervention package to

implement. Such an intervention package would then be the basis for determining human resource needs.

Human resource development and deployment should ultimately be linked to the most cost-effective package of services for a particular setting. Different human resource needs are required for the different types of packages, with decentralization requiring increased capacity at the primary healthcare and community levels. Assessments will need to define the specific linkages and personnel requirements as reforms are planned and implemented.

For example, the need for medical, economic, and emotional support implies that the best care might be provided by a multi-disciplinary team (Brugha 1994; Cohen and Trussell 1996). Perhaps the best-known model of hospital-initiated service is the Chikankata program in Zambia, initiated in 1987. The mobile home-care team consists of a clinical officer, a nurse, an assistant AIDS educator, and a driver who visits between five and eight people each day, three days a week (Chela and Siankanga 1991; Cohen and Trussell 1996). Experimental HIV/AIDS prevention programs in South Africa and Mozambique confirm the benefits of using the prestige, credibility, and availability of traditional healers to promote condom use. Healers are major sources of care for sexually transmitted diseases in southern Africa. A training assessment of 1,510 South African healers trained in HIV/AIDS prevention and symptom identification indicated that healers can play a role in prevention and possibly referral (Green et al. 1995).

Another dimension of the issue is that human resource planning will be required for bringing to scale new models of service provision. Although discrete HIV/AIDS care programs are critical local responses to the needs of people living with HIV/AIDS and their families, overall they only reach a small percentage of people who are in need of support and care (Gilks et al. 1997). Meeting the demand for care will require extensive multiplication of such programs, which is happening slowly. Program expansion will require scaling up human resources in terms of training, supervision, and financial investment to match the appropriate constellation of staffing patterns at each level of the health system.

What will be the impact of health reforms on human resources? Assessments should examine the human resource implications of innovative intervention approaches which have significant positive impacts from two perspectives. These are service needs and human resource capacity.

**Critical questions relating to the service needs are:**

- What are the human resource management capacities of ministries of health and other organizations?
- What is the most cost-effective package of services for which to plan future human resources?
- Is a referral system established and functioning efficiently and effectively to integrate services?

- How are the facility-based services linked to the community-level care and support programs?
- How can public and private health services harmonize regulation, standards, education, and compensation as a way to mitigate against HIV/AIDS and improve performance?

**Critical questions relating to human resource capacities:**

- C What numbers of trained staff are in place and should be at all levels to provide care and support at various stages of an individual's disease and, more importantly for programs, at various stages in the epidemic?
- C Who will provide HIV/AIDS preventive, care, and support services under various models of care?
- C Which promising models exist for integrating maternal and child health/family planning with HIV/AIDS control programs?
- C How will human resources be brought to scale to correspond with the new models of service provision?
- C How are medical, nursing and paramedical schools responding to changing staffing needs and orienting their curricula?

**Tools for Assessing the Impact of HIV/AIDS on Human Resources**

Few African countries have yet undertaken assessments of the impact of HIV/AIDS on the health system particularly as it relates HR needs and capacities for an expanded and accelerated response to the epidemic. With personnel costs consuming 70–80 percent of the budget of most health organizations, it is essential to identify human resource impacts and to address them.

Two tools currently exist for assessing the impact of HIV/AIDS on human resources in the health sector: (1) the multi-sectoral “AIDS Toolkits” incorporating the government response component developed by Abt Associates Inc. and the University of Natal in South Africa; and (2) the “Human Resource Development Assessment Tool” developed by Management Sciences for Health in the U.S. By involving key actors in the assessment process, these instruments have already shown their potential to rapidly translate data into coherent strategies and reprioritize organizational plans. Detailed descriptions of these tools are provided in Annex 2 at the end of this document.

The “AIDS Toolkits” have been successfully used in Botswana for a health sector assessment and in South Africa for the education and public services administration sectors. Their purpose is to facilitate the ability of government ministries to respond to HIV/AIDS. Beginning with an assessment of the prevalence and incidence of the disease, the toolkit can be used to guide projections of the human resource needs based on increased service demand.

Management Sciences for Health has produced a “Human Resource Development Assessment (HRDA) Tool” which has successfully been used in Zambia, Albania, and Bolivia by public- and private-sector health organizations. Its purpose is to provide users with an assessment instrument to identify the organization’s characteristics with respect to the core functions of a human resource system and develop an action plan to address problems.

The “AIDS Toolkits” and “Human Resource Development Assessment Tool” differ in emphasis but not in approach. Both assist organizations to assess their own human resources by involving key actors. Assessments which actively involve staff: (1) increase the buy-in of key actors, thereby enhancing the likelihood that they will be used; (2) encourage the organization to be critical of outputs; (3) allow for familiarity with the sector in the country or province being studied, hence improving the validity, conclusions, and recommendations. These tools can be used to demonstrate that human resource development has an integrated purpose, that the health system should be viewed as a production function, and that by investing in human resources, an organization invests in enhanced productivity and improved social welfare.

Assessment tools may not always critically address certain gross or subtle factors related to health impacts. In countries with relatively young epidemics, for example, there is significant denial and a failure to recognize certain impacts as being HIV/AIDS-related. Routine quantifiable data (e.g., rates of attrition or absenteeism) may be weak mainly because systems may not desire to maintain accurate HR information for various reasons or they do not have the capacity to do so. Thus, it is important to recognize that current approaches and tools may continually need to be refined as certain issues become significant and prioritized in future years.

### **Indicators for Human Resource Impacts**

Indicators will need to be defined as new tools are developed for future assessments of the impact of HIV/AIDS. Steps in this direction have already been undertaken as part of the toolkits reviewed above. A tool, “Guide to Monitoring and Evaluation of National AIDS Programs,” also consolidates existing data collection instruments to create a framework within which improved instruments can be developed. This guide also outlines a few indicators which currently exist for monitoring human resources in the context of the epidemic:

- the proportion of formal-sector employers sampled with non-discriminatory policies and practices in recruitment, advancements, and benefits for employees with AIDS;
- the rate of accidental transmission in healthcare settings;
- the percent of medical personnel trained in AIDS.

This list needs to be expanded and complemented with standardized, appropriate tools for collecting data. First, the resulting core set of indicators should be used to collect baseline data for monitoring and evaluating HIV/AIDS programs. Secondly, these indicators should be linked to the more detailed needs of individual programs to prevent and mitigate the impacts of HIV. An example of suggested indicators follows in Table 3 below.

## **Development of Future Assessment Tools and Indicators**

The existing human resource assessment tools described could form a basis for the development of locally adapted rapid assessment tools in sub-Saharan Africa. This would lead to the development of simple sets of core indicators for use at national, district, and service levels. For example, critical indicators from other instruments, such as the MEASURE health facility assessment, could be used in individual projects for gathering data at the facility level. (These instruments are described in Annex 2 at the end of this document.) The “HIV/AIDS Toolkits” and the “Human Resource Development Assessment Tool” have already been field tested. This review recommends that they be adapted and linked to an agreed-upon set of indicators to standardize the monitoring and evaluation of the epidemic’s impacts on a broader scale. Of utmost importance is their introduction into AIDS control programs through a process which enhances ownership and transparency.

**Table 3: Examples of potential human resource impact assessment indicators**

COMPONENT	PURPOSE OF ASSESSMENT	TYPES OF POTENTIAL ASSESSMENTS	EXAMPLES OF INDICATORS (# and/or %)
Employee data	Baseline capacity	<ul style="list-style-type: none"> <li>* Review of human resource/personnel files</li> <li>* Semi-structured interviews with employees</li> </ul>	Staff by cadre/skill level Staff by location Staff by gender Staff by salary level
Employee infections and susceptibility to infection	Baseline epidemiology  Motivation for planning	<ul style="list-style-type: none"> <li>* HIV prevalence estimates based on regional/provincial HIV prevalence</li> <li>* Rough estimate of multiplier effect for service-based ministries (e.g., # employee AIDS deaths X # service recipients per employee)</li> <li>* Semi-structured interviews with employees</li> </ul>	HIV-infected staff currently AIDS deaths New infections among staff Reported condom use Reported sex with >1 partner in previous year Knowledge, attitude, and practices (KAP) of health staff regarding prevention and treatment of HIV/AIDS
Absenteeism and productivity	Planning  Restructuring work processes	<ul style="list-style-type: none"> <li>* Review of sick leave utilization, absenteeism, operational implications and costs</li> <li>* Review of work processes and interviews with key personnel to identify areas vulnerable to stoppages/bottlenecks</li> <li>* Review of sick leave policies</li> <li>* Calculation of projected sick leave and work stoppages</li> </ul>	Reported days sick leave (past 3 years) Days of other absenteeism Unit measures of productivity (clients treated per employee, etc.) Projected sick leave and costs under current benefit structure
Human resource development budget	Planning	<ul style="list-style-type: none"> <li>* Review of budget allocated for human resource development</li> </ul>	Budget allocated for human resource development
Recruitment, hiring, and training	Planning	<ul style="list-style-type: none"> <li>* Skills audits</li> <li>* Review of staff turnover</li> <li>* Review and analysis of recruitment costs</li> <li>* Review of training plan</li> </ul>	Days from vacancy to filled post for various personnel categories Costs of recruiting, hiring, and training personnel at various levels Staff trained in HIV/AIDS-relevant protocols, counseling, VCT, ARV, MTCT, opportunistic infections, pain management, etc.

COMPONENT	PURPOSE OF ASSESSMENT	TYPES OF POTENTIAL ASSESSMENTS	EXAMPLES OF INDICATORS (# and/or %)
Job classification system	Restructuring work processes	<ul style="list-style-type: none"> <li>* Review of job descriptions</li> <li>* Review of human resource/personnel manual</li> <li>* Interviews</li> </ul>	Rating of job classification system (documented and used in reality)
Morale	Motivation Planning	<ul style="list-style-type: none"> <li>* Focus groups</li> <li>* Anonymous employee surveys</li> </ul>	<p>Employees affected by HIV illness or death of family members, friends, colleagues</p> <p>Types of impacts experienced by employees</p> <p>Attitudes to workplace support</p>
Benefits	Motivation Benefit restructuring	<ul style="list-style-type: none"> <li>* Review of sick leave policies</li> <li>* Calculation of projected sick leave and other absenteeism and costs</li> </ul>	<p>Employer contributions schemes</p> <p>Death claims</p> <p>Disability claims</p> <p>Ill health retirements</p> <p>Costs of above</p>
Gender	Motivation Planning	<ul style="list-style-type: none"> <li>* Workplace survey</li> <li>* Focus groups with external facilitator</li> </ul>	<p>Women in management level</p> <p>Staff changeover by gender</p>
Capacity to respond	Increasing effectiveness Planning new interventions	<ul style="list-style-type: none"> <li>* Review of employee HIV/AIDS prevention programs</li> <li>* Survey of line managers</li> <li>* Evaluation of employee assistance programs</li> <li>* Focus groups or semi-structured interviews with users and non-users of employee assistance programs</li> </ul>	<p>Employees reached by workplace prevention and care programs</p> <p>Budgetary capacity for prevention</p> <p>KAP among employees by category</p> <p>Users and non-users of employee assistance programs by cadre</p>
Occupational safety	Ethical responsibility Financial responsibility	<ul style="list-style-type: none"> <li>* Interviews and surveys</li> <li>* Use of appropriate routinely available data (e.g., staff files, supply lists of gloves)</li> </ul>	<p>Personnel injured on duty (e.g., rate of accidental transmission)</p> <p>Staff using sterile techniques</p> <p>KAP of staff on safety of contact with patients by cadre</p>
Policy and legislation	Policy development and planning	<ul style="list-style-type: none"> <li>* Review of personnel policy manual</li> <li>* Interviews on labor law compliance</li> <li>* Review of policies on disclosure of HIV-positive status</li> </ul>	<p>Rating score for human resource/personnel policy manual</p> <p>Rating of human resource/personnel policies regarding HIV/AIDS</p> <p>Organizations/departments with non-discriminatory policies</p>

Adapted from "AIDS Toolkits: Planning Tools" and "Human Resource Development Assessment Tool."

## Conclusions and Recommendations

This review has identified key areas of study and information gaps on human resource impacts. These studies are described in greater detail in Annex 1 at the end of this document. Findings and recommendations for future assessments are summarized below.

### *Summary of Findings*

Given the scarcity of assessments carried out to date on the impact of HIV/AIDS on human resources in the health sector, immediate action is required. Evidence indicates that there is an increased demand for health services as a result of the epidemic. Studies suggest there are changes in the disease profiles and thus the type of services required across sub-Saharan Africa. Simultaneously, the epidemic is decreasing the number and productivity of health service providers as they are lost to their own illness and death, as well as factors such as stress and demands from family members who die from the disease.

Where human resource assessments have been undertaken, involving stakeholders, the results have been promising. The experience from South Africa (see Annex 1, "Using impact assessments to mobilize political commitment and action against HIV/AIDS: The experience of Gauteng Province, South Africa; 1997-1998") demonstrates that such assessments are powerful mechanisms for creating a forum to inform and improve advocacy, canvassing, and resource commitment for an improved response to the epidemic. This health sector human resource assessment resulted in the establishment of an interdepartmental AIDS program, a ten-fold increase in the HIV/AIDS budget over the previous year, and the development of an HIV/AIDS strategy which is currently being implemented. Results continue to be used by stakeholders to mobilize commitment and provide data for planning. Evidence from private businesses across various sectors in sub-Saharan Africa has provided valuable lessons on potential benefits of workplace prevention programs, insurance policies, and benefit packages that optimally serve the interests of all stakeholders, and the provision of new therapies (e.g., antiretroviral drugs).

### *What Is Known*

There is general agreement on the following points based on research carried out to date on human resource impacts:

- C **Crowding out effects.** Health facility assessments suggest that the epidemic is crowding out patients suffering from conditions which are seemingly less severe than HIV/AIDS. Health service providers at the peripheral facilities are overburdened and require additional skills to deal with the changing disease burden.
- **Health worker knowledge, attitudes, and practices.** Several studies (see Annex 1) in sub-Saharan Africa indicate that certain health personnel working in a variety of health service capacities have less than optimal knowledge and skills for managing HIV/AIDS cases, fearful attitudes, and unsatisfactory practices which compromise quality of care and their own safety.
- **HIV rates among healthcare workers.** Private sector epidemiological studies show that

there are variations in HIV status by type of industry, employees' income levels, residence, age, and sex of employees. A study of HIV prevalence among healthcare workers from Africa suggests that doctors and nurses are at least as likely to become infected as other people. Related to the issue of health worker infection and death is occupational risk. According to the retrospective South African study, HIV transmission from injuries on duty among health staff is minimal.

- **HIV/AIDS mortality among health personnel.** However, a separate health sector assessment conducted in Botswana suggests that projections of HIV-related mortality cannot be based on general prevalence rates alone but should consider the demographic profile of health workers. Age-specific death rates can be used to project the ratio of health personnel to population over time.
- **The health personnel versus population ratios in selected countries.** Data exists on the ratio of health personnel to population, although urban/rural distinctions may not be available. Such information is useful for advocacy for making human resource development a priority and for projecting potential impacts of the loss of health personnel.
- **Human resource development.** Data generally exists at the ministry level on the number of staff by cadre/skill level, location, gender, and salary level, however it may not be compiled in such a way for readily available use in human resource planning.
- **Refining assumptions on supply and demand for services.** The epidemic is dynamic and study results and new advances on confronting the epidemic are emerging daily. Assumptions on which the projected demand and supply of services are based should be continually refined. For example, the assumption that the increased demand for healthcare services occurs only during the last year of life may ignore the additional demands of children of HIV-positive mothers, of newly infected persons within the six-to-ten year time span, and for tuberculosis services (Anonymous 1995).

### *Gaps in Knowledge*

There is limited data, evidence, and knowledge on the following issues:

- **Supply and attrition of health sector staff.** Data are extremely limited in the health sector on the degree of attrition of workers due to HIV/AIDS. No studies are available on employee susceptibility to HIV or opportunistic infections. Demographic profiles of health workers are rare. The thorough assessment conducted in Botswana cautions that verifiable data could only be obtained for ten percent of health workers and sample sizes differed for different categories of workers. There could be no assurance that the sample was not significantly biased. To date, no studies in sub-Saharan Africa have evaluated the impact of increased out-migration of highly trained staff or reduced training outputs of universities due to HIV/AIDS.
- **Absenteeism and productivity.** Determining the epidemic's impact on human resources in the health sector, in terms of absenteeism and productivity, is essential for forecasting future health system costs and performance. Only rough data exist on the number of cases of known or suspected HIV/AIDS among health staff at particular hospitals. The analyses conducted by private sector firms in Kenya can be used as

models since there is little information on the most significant factors in increased medical costs due to HIV/AIDS-related illness.

- **Recruitment and hiring policies.** Anecdotal evidence from Swaziland is available on the outdated policies which constrain institutions from replacing staff on sick leave. No studies could be identified on the number of days from vacancy to filled post for various personnel categories in the health sector, nor the costs of recruiting and hiring personnel at various levels of the system, which have profound effects on supply shortages.
- **Employer contribution schemes.** The lack of information on impacts on employee benefits is a serious omission from health sector assessments. However, the private sector has shown that data on the number and costs of death and disability claims is a foundation for developing future compensation policies.
- **Health worker knowledge, attitudes, and practices.** Four studies in Senegal, Tanzania, Uganda, and Zambia indicate that in-depth research is still needed to identify the basis of health worker fears in treating HIV/AIDS patients, their reluctance to work in high HIV prevalence areas, reasons they are not providing effective counseling and testing, and why safety standards are not followed.
- **Training and counseling capacity and effects.** The extent to which health service personnel have been trained in counseling and testing, mother-to-child transmission, management of opportunistic infections, provision of antiretroviral therapy, and other specific topics, needs to be determined. The effects of training on various cadres of staff regarding prevention, care, and support of HIV-infected individuals need to be explored to assure quality care.
- **Health sector reforms and scaling up.** While training is certainly an important component of human resource management, without strategic human resource planning, good performance in the health system will not be achieved (Martinez and Martineau 1998). Assessments will need to address the implications of decentralized decision-making and services. This includes scaling up innovative models such as DOTS and TB preventive therapy, the introduction of antiretroviral therapy, and community and home-based care of people living with HIV/AIDS. Studies have not yet identified the human resource requirements of scaling up workplace prevention and care programs nor the costs and benefits.

## *Recommendations*

The specific recommendations aim to facilitate the collection of appropriate and up-to-date data on HIV/AIDS impacts on human resources in the health sector and to promote their use at the national level for designing mitigation responses. Results should be communicated to key policy makers, program decision makers, and other stakeholders to ensure appropriate policies, strategies, and interventions such as: strengthened political and executive leadership in the field of HIV/AIDS; commitment of funds; and development of provider skills to meet the changing patient mix, disease profiles, and diagnostic, care, and support therapies.

### **Specific recommendations:**

- 1) Undertake human resource needs assessments in the health sector across sub-Saharan Africa to improve the performance of national AIDS control programs. Initially, select three countries to empower African institutions to develop and adapt the existing tools. Hold a workshop in one of the selected countries to develop the tool and plan for the three assessments.
- 2) Identify and form partnerships of stakeholders who will work together to establish national coordinating bodies, adapt the proposed set of indicators, develop the tools, undertake assessments, and use the results to design locally relevant interventions and actions. Involving stakeholders encourages the organization to be critical of outputs and ensures that assessments lead in a pre-planned way into strategy development.
- 3) Provide donor funds and commit resources for initial assessments and, ultimately, ongoing and replicated assessments across countries.
- 4) Develop a core set of standardized human resource indicators for the health sector to collect baseline data, monitor, and evaluate mitigation responses. These indicators should be developed to collect information on human resource capacity at the district and national level and be standardized for aggregation at the regional level. A more comprehensive list of potential indicators for individual projects should be considered.
- 5) Adapt the existing “HIV/AIDS Toolkits” and the “Human Resource Development Assessment Tool” during the first workshop. Tools should ultimately be able to assess:
  - C the effects of the epidemic on labor absenteeism caused directly by higher staff morbidity;
  - C exceptional mortality amongst different cadres of workers to identify probable losses of skilled, professional, and other employees by age, sex, and geographical area;
  - C the direct costs to the health sector due to absenteeism, labor turnover, and replacement (including recruitment, training, health and medical costs, and support for dependents);
  - C the indirect effects due to human resource losses, including qualitative evaluation of the effects of morbidity and mortality on morale, attitudes,

- c and social cohesion within institutional settings;
  - c estimation of the probable effects on health sector capacity over the next five to ten years to inform planning;
  - c existing policies and programs requiring action by the government, donors, and other institutions (religious organizations, NGOs, professional associations, etc.)
  - c the implications of scaling up programs, by comparing the costs and benefits within and between programs.
- 6) Explore the use of mathematical models developed on the economic impact of AIDS on private sector companies and other sectors in sub-Saharan Africa. Examine private sector research frameworks to demonstrate relevant impacts on the health sector. Such examples can reinforce the paradigm that health should be viewed as a production function. Linked with financial data, future impacts can be projected and can provide valuable information for advocacy purposes and program interventions. Explore the feasibility of adapting computer-based economic models to examine the impact of AIDS on the health sector.
  - 7) Begin baseline data collection on human resources as soon as possible in selected countries to build the base of understanding of the tool and health sector impacts.
  - 8) Analyze, write up, and plan follow-up action in each of the selected countries.
  - 9) Disseminate results of human resource assessments undertaken, carry out advocacy activities, and implement proposed actions in each of the three countries to mitigate the impact of the HIV/AIDS epidemic.
  - 10) Replicate the process in other countries prepared to establish an ongoing monitoring and evaluation of HIV/AIDS impacts.
  - 11) Refine assumptions as assessment results provide new data for decision-making. There is a whole “second level” of more detailed knowledge that eventually should be explored to ensure the validity of impact assessments. For example, if it is more cost-effective for a private sector employer to supply new therapies than to bear the increased expenditures of recruitment, training, and personnel illness, disability, and death claims, what is the implication for the public sector?

As Africa scales up AIDS programs and undertakes assessments across countries to meet the challenges ahead, human resource policy and management must be considered a priority investment. It is therefore envisaged that partners will aim to establish national coordinating bodies in sub-Saharan Africa to adapt a proposed set of indicators, undertake impact assessments, and use the results to design locally relevant interventions and actions. The U.S. Agency for International Development (USAID) and other partners will be expected to provide resources and technical assistance and to guarantee sustainability of funding.

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## **Annexes**



## Annex 1: Major studies on HIV/AIDS impacts on human resources within the health system

#	Study	Methodology	Impacts	Responses
1.	<p>Mortality among female nurses in the face of the AIDS epidemic: a pilot study in Zambia</p> <p>Buve A, Foaster SD, Mbwili C, Mungo E, Tollenare N, and Zeko M</p> <p>1994</p> <p>AIDS 8(3): 396.</p>	<p>Data was collected on mortality among 22 female nurses at two hospitals in Zambia by examining death certificates. Data was collected from one hospital over three time periods: 1980-85; 1986-88; and 1989-91. For the other hospital data was collected over two time periods: 1986-88.</p>	<p>Results indicate that the mortality rate increased in Hospital A from 2/1000 to 3/1000 to 25.5/1000 over the three time periods. In Hospital B, mortality increased from 14.5/1000 to 28.2/1000 over the two time periods. Combining results from both hospitals, the number of deaths among nurses increased from 1 to 17 between 1980 and 1991; thus the mortality rate increased from 2/1000 to 26.7/1000 over the same period. The observed increase was attributed largely to HIV infection.</p>	<p>More studies such as this landmark study are required to examine HIV/AIDS impacts on various types of staff (by gender, cadre, age, etc.) in order to:</p> <ul style="list-style-type: none"> <li>- estimate the impact of HIV/AIDS on health sector mortality and attrition</li> <li>- target interventions</li> <li>- monitor the effects of interventions such as workplace prevention, care, and support programs</li> <li>- estimate costs in terms of disability and death benefits</li> <li>- plan for recruitment, hiring, and training needs.</li> </ul>

**Annex 1 (cont.)**

#	Study	Methodology	Impacts	Responses
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2.	<p>Differential human immunodeficiency virus risk factors among female general nurses, nurse midwives and office workers/teachers in Zambia</p> <p>Siziya A and Hakim JG 1996</p> <p>Central African Journal of Medicine April; 42(4): 114-7.</p>	<p>In a cross-sectional analysis of 370 general nurses, 370 nurse-midwives, and 370 office workers and teachers, the risk factors for HIV infection were compared.</p> <p>Positive HIV tests were obtained from 163 general nurses, 146 nurse-midwives, and 156 office workers/teachers.</p>	<p>Nurses and nurse-midwives were more knowledgeable than teachers and office workers about the routes of HIV transmission; 43 percent of those in the former group, compared to only 31 percent of women in the latter group, had adequate knowledge scores.</p> <p>The only significant risk factor for HIV infection among nurse-midwives was through blood transfusion (odds ratio [OR] 2.17, 95 percent confidence interval, 1.13-4.14). Among general nurses, significant risk factors included a history of genital ulcers (OR 3.59, CI: 1.30-10.85), history of a sexually transmitted disease after 1980 (OR 5.17, CI 1.60-15.05), and more than one sexual partner (OR 4.08, CI 1.54-13.0). Among office workers and teachers, the only significant risk factor was scarification (OR 1.66, CI 1.07-2.57).</p>	<p>The variation in risk factors identified in these three groups suggests a need for HIV prevention interventions tailored to different sectors of the Zambian population.</p> <p>In the health sector, proposed responses include:</p> <ul style="list-style-type: none"> <li>- medical training to emphasize general risks of HIV transmission</li> <li>- workplace HIV prevention programs and ongoing education about health personnel's own personal risk behaviors</li> <li>- workplace treatment for sexually transmitted diseases.</li> </ul>
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#	Study	Methodology	Impacts	Responses
3.	<p>Retrospective analysis of injury on duty (IOD) cases with specific emphasis on HIV transmission as reported in a secondary hospital in Bloemfontein, South Africa</p> <p>de Villiers A, South Africa</p> <p>Paper presented at XIII International AIDS Conference 2000.</p>	<p>The frequency of IOD cases in a large secondary hospital in Bloemfontein was investigated with a specific emphasis on the prevention of HIV that may occur as the result of sharp instrument injuries.</p> <p>A retrospective study was performed using all IOD's reported over a 2-year period using hospital personnel records.</p> <p>Data were analyzed with Microsoft Excel.</p>	<p>100 IODs were reported over the 2 year period:</p> <ul style="list-style-type: none"> <li>- 41% worked in nursing</li> <li>- 38% in the cleaning dept.</li> <li>- 6% in administration.</li> </ul> <p>Cleaners comprise 16% of the total personnel of the hospital but reported 38% of all IODs. Most injuries occur in theatre and casualty.</p> <ul style="list-style-type: none"> <li>- 45% of reported injuries were needle-stick related.</li> <li>- Of these, 62% (n=28) were reported by cleaning staff.</li> <li>- 44% of reported IODs occurred on the hands, of which 50% (n=22) were needle-stick injuries of cleaning staff.</li> <li>- The average period of leave after injury was 4 days (range= 1-40 days).</li> </ul> <p>Impacts are financial and ethical.</p>	<p>Hospitals which serve as training sites for medical and paramedical students should include the proper handling and discarding of sharp objects as part of practical training.</p>

**Annex 1 (cont.)**

#	Study	Methodology	Impacts	Responses
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4.	<p>Occupational exposure to the risk of HIV infection among health care workers in Mwanza region, United Republic of Tanzania</p> <p>Gumodoka B, Favot I, Berege ZA, and Dolmans WM</p> <p>1997</p> <p>Bulletin of the World Health Organization 75(2): 133-40.</p>	<p>Data gathered from questionnaires and direct observation were collected in 9 hospitals in the region between May and September 1993. 403 hospital workers completed the AIDS-related questionnaire.</p>	<p>Seventy-one (71%) percent had adequate knowledge scores but observation of hospital wards revealed insufficient measures to reduce the risk of HIV transmission (e.g., non-functioning water taps, lack of plastic bags for disposal of soiled linen, widespread shortages of gloves). Of 118 doctors and medical assistants interviewed, 1% had pricked themselves in the preceding week as had 9.2% of 623 nurses; 22% of nurses working in operating theaters had pricked themselves in the previous month. Among the 50 laboratory technicians interviewed, 25% had been pricked in the previous month. In addition, more than half of nursing and medical personnel had been splashed, largely by blood and amniotic fluid, in the preceding month. Assuming an HIV prevalence of 20% among hospital patients in Mwanza, the estimated annual incidence of HIV infection due to occupational exposure is .27% with percutaneous exposure contributing 93% of this risk. This risk is higher among surgeons: 0.7% per year.</p>	<p>Prevention of pricking accidents should be prevented through training and adherence to protocols on:</p> <ul style="list-style-type: none"> <li>- the use of double gloving</li> <li>- forceps to remove syringes</li> <li>- the need to dispose of contaminated products in appropriate containers to reduce the risk of occupational HIV exposure.</li> </ul>
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#	Study	Methodology	Impacts	Responses
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<p>5. A prospective study on the risk of exposure to HIV during surgery in Zambia</p> <p>Consten EC, van Lanschoot JB, Henny PC, Tinnemans JG, and van der Meer JT</p> <p>1995</p> <p>AIDS June; 9(6): 585-8.</p>	<p>In a prospective study conducted over a six-month period in 1993 at St Francis Hospital in Zambia, surgeons recorded any exposure from parenteral blood and collected serum samples from 296 patients randomly selected from the 1,078 patients undergoing surgery during this period.</p>	<p>HIV seroconversion risk among surgeons in tropical Africa may be 15 times higher than in developed countries. Of the 296 surgery patients randomly selected, 66 (22.3%) were HIV-positive. During 1,161 surgical procedures, there were 12 (1%) superficial parenteral exposures, four of which involved HIV-infected blood. These exposures included 10 needle-sticks with a non-hollow suture needle, one hand laceration, and one splash to the eye. Half involved obstetricians/gynecologists. For a surgeon working in Zambia for five years, the risk of contracting HIV through parenteral exposure can, on the basis of this study, be calculated at 1.5% given a 22.3% patient seroprevalence rate and an average of three exposures per year (0.7% of 400 operations per year/ surgeon). For a western surgeon, this risk is 0.1% (0.23% seroprevalence rate) where accidental injuries run at 20 per year or 5.6% of 350 operations.</p>	<p>To improve AIDS prevention, care, and support:</p> <ul style="list-style-type: none"> <li>- medical training needs to include preventive measures to reduce occupational risks</li> <li>- health workers need ongoing education about AIDS</li> <li>- safety standards should be established and enforced</li> <li>- supplies and equipment for sterile procedures should be available to protect healthcare staff and patients from HIV transmission.</li> </ul> <p>Medical training needs to include preventive measures to reduce occupational risks among health professionals. Safety in medical procedures and appropriate handling of equipment should be enforced.</p>
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Annex 1 (cont.)

#	Study	Methodology	Impacts	Responses
6.	<p>Increasing frequency of TB among staff in a South African hospital: impact of the HIV epidemic on the supply of health care</p> <p>Wilkinson D and Gilks CF 1998</p> <p>International Conference on AIDS. 12: 135 (abstract no. 611/13246).</p>	<p>To describe the changing frequency of TB among staff in a South African hospital and to compare incidence among health workers with that among ancillary staff, the number and type of cases of TB among staff diagnosed between 1991 and 1996 was ascertained. The incidence rate of TB among health workers and ancillary staff was compared with the community age-specific rate for 20-59 year olds.</p>	<p>From 1991 to 1992, two cases of TB were diagnosed among hospital staff, but from 1993-1996, 20 cases were diagnosed. Of 14 (64%) staff tested, 12 (86%) were HIV infected. Incidence of TB among health workers (558/100,000 person-years of observation [PYO]) and ancillary staff (445/100,000 PYO) were not significantly different (<math>p=0.7</math>), but were lower than the incidence rate among 20-59 year olds in the community (1,543/100,000).</p> <p>TB increased among hospital staff secondary to the impact of HIV in TB incidence. Because there was no increased risk among health workers compared to ancillary staff, community transmission may be more frequent than transmission occurring from patient care.</p>	<p>Interventions are required to counter the effect of TB on health sector personnel. These interventions may include:</p> <ul style="list-style-type: none"> <li>- DOTS or preventive therapy administered at the community level</li> <li>- workplace interventions.</li> </ul>

#	Study	Methodology	Impacts	Responses
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<p>7.</p>	<p>Using impact assessments to mobilize political commitment and action against HIV/AIDS: the experience of Gauteng Province, South Africa; 1997-98</p> <p>Kinghorn A, Abt Associates, Sandton, South Africa and Floyd L, Gauteng AIDS Unit, Gauteng Provincial Government, Johannesburg, South Africa</p> <p>Paper presented at XIII International AIDS Conference 2000.</p>	<p>Using the "AIDS Toolkits," human resource impacts were studied in the course of conducting a health sector assessment. The assessments were carried out with the participation of key stakeholders, with support from the Ministry of Finance and Development Planning and the UNDP in Botswana. They used existing data, adjusted data, and projections of human resources to:</p> <ul style="list-style-type: none"> <li>- identify types and projected scale of impacts on Gauteng Provincial Government employees</li> <li>- evaluate the adequacy of existing HIV/AIDS policies and programs and human resource management systems and capacity.</li> </ul>	<p>Projections indicate that numbers of AIDS cases and AIDS deaths in Botswana will increase rapidly and to high levels in the near future. In 2005, an estimated 5 percent of health workers will have AIDS and around 3.5 percent will die of AIDS. Projections suggest that when all deaths are added up, 16-18 percent of the current health workforce could have died of AIDS by 2005.</p> <p>HIV/AIDS among health workers will result in direct costs to the health sector such as:</p> <ul style="list-style-type: none"> <li>- rising medical aid costs</li> <li>- claims for disability and death benefits</li> <li>- housing and motor vehicle loans, and emergency advances of salary.</li> </ul> <p>Indirect cost impacts will reduce productivity and can seriously compromise service delivery. Remote areas, small, and specialized services may be particularly vulnerable due to less ability to cover for lost or sick staff.</p>	<p>Recommended responses included:</p> <ul style="list-style-type: none"> <li>- convening of intersectoral and specific health sector working groups to focus on impacts of HIV/AIDS on employees</li> <li>- development, dissemination, and refinement of an ongoing HIV/AIDS policy for public officers</li> <li>- ensuring adequate commitment and resources</li> <li>- reducing HIV/AIDS stigma and providing HIV prevention programs for employees and trainees</li> <li>- ensuring workplace health and safety for HIV-infected and uninfected employees</li> <li>- a systematic review of employee benefits</li> <li>- reviewing projections of staffing needs and staffing guidelines for purposes of training and revising staff functions</li> <li>- enhancing training capacity and efficiency, including curricula</li> <li>- monitoring of trends in deaths, disability retirement, sick leave and absenteeism</li> <li>- obtaining more accurate data on HIV infection levels and customized projections of</li> </ul>
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## Annex 1 (cont.)

#	Study	Methodology	Impacts	Responses
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	<p>Using impact assessments to mobilize political commitment and action against HIV/AIDS: the experience of Gauteng Province, South Africa; 1997-98 (continued)</p>		<p>HIV/AIDS impacts on employees to inform planning</p> <ul style="list-style-type: none"> <li>- active management of sick leave</li> <li>- creating a supportive environment that enables infected staff to disclose their status early</li> <li>- establishing systems to protect all staff against poor morale and burn out</li> <li>- identifying services and work processes that are particularly vulnerable to absenteeism and death of staff</li> <li>- evaluating and strengthening performance management systems</li> <li>- reviewing recruitment and appointment processes to enhance efficiency</li> <li>- effective participation of employee representatives in policy and program development.</li> </ul> <p>The Provincial Cabinet mandated the establishment of an interdepartmental AIDS program and increased the budget more than ten-fold from the year before. An HIV/AIDS strategy was developed and implemented. Results are still used to mobilize commitment and provide data for planning.</p>
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#	Study	Methodology	Impacts	Responses
8.	<p>Marginal yield of nurses facing AIDS sickness in sub-Saharan Africa: a Zairean case</p> <p>Lombela WG</p> <p>1996</p> <p>International Conference on AIDS. July 7-12; 11(2): 443 (Abstract no. Pub.B.1034).</p>	<p>The marginal yield (additional effort) of nurses taking care of 196 hospitalized AIDS patients was measured by use number (vital signs, administration, blood sampling and analysis, and maintenance efforts) in 1992. Of these patients, 98 were HIV+ and 98 were seronegatives.</p> <p>Regression analysis using pooled data was applied with total nurse's care as the dependent variable, and with serology (binary) and length of stay as independent variables.</p>	<p>Nurses are compelled to work significantly more, sometimes at double the effort, to care for AIDS patients.</p>	<p>Human resource planning requires measures to:</p> <ul style="list-style-type: none"> <li>- determine staffing needs and supply based on the increased demand of the epidemic</li> <li>- determine realistic levels of effort of health personnel</li> <li>- provide appropriate support to minimize stress and avoid burnout</li> <li>- compare alternative staffing patterns and/or health reforms to decentralize services.</li> </ul>

Annex 1 (cont.)

#	Study	Methodology	Impacts	Responses
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<p>9. HIV testing, counseling and education: perceptions of hospital based health care workers in Uganda</p> <p>Mungherera M, Fowler G; Mandel J, Hearst N, and Mbidde E</p> <p>1996</p> <p>International Conference on AIDS. July 7-12; 11(2): 364</p> <p>Abstract no. Th.C.472.</p>	<p>To investigate the perceptions of hospital-based doctors and nurses regarding AIDS patients, HIV counseling and testing, and HIV prevention education of inpatients, 30 doctors and 26 nurses completed a self-administered questionnaire.</p>	<p>Attitudes:</p> <ul style="list-style-type: none"> <li>- All doctors and 92% of nurses felt that HIV testing should always be done with patients clinically suspected of HIV infection.</li> <li>- 19.6% of respondents reported they are frightened of taking care of HIV-infected patients while 19.6% of doctors and 19.2% of nurses admitted they would rather not treat HIV-infected patients.</li> <li>- 40% of doctors and 24% of nurses claim they never talk to inpatients about HIV and prevention of its spread.</li> <li>- All the doctors and 96% of nurses felt that the responsibility of HIV counseling should be that of either the doctors or the nurses, and not anybody else.</li> </ul>	<p>Hospital-based doctors and nurses should be equipped with HIV counseling skills.</p> <p>In-depth studies are needed to identify:</p> <ul style="list-style-type: none"> <li>- the basis of fears</li> <li>- their reluctance to work in a high HIV prevalence area</li> <li>- their reluctance to treat HIV-infected patients</li> <li>- reasons they will not involve themselves in HIV/AIDS education of patients on their wards.</li> </ul>
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#	Study	Methodology	Impacts	Responses
10.	<p>Incorporating AIDS into maternal and child health services</p> <p>Chirwa BU, Mbomona J, Likwa R, Kakoma CF, Maruping A, Dreesch N, and Guidotti R</p> <p>1992</p> <p>International Conference on AIDS. July 19-24; 8(3): 204</p> <p>Abstract no. PuD 9035</p> <p>AIDSLINE ID: ICA8/92403987.</p>	<p>A self-administered questionnaire was completed by health staff and researchers observing them as a rapid assessment procedure to assess health worker knowledge towards AIDS. Qualitative and quantitative techniques were used to conduct this assessment in six of the nine provinces of Zambia.</p>	<p>Knowledge of AIDS:</p> <ul style="list-style-type: none"> <li>- Only 11.7% of health staff had sufficient knowledge about AIDS.</li> </ul> <p>Medical safety standards:</p> <ul style="list-style-type: none"> <li>- Universal precautions were practiced by 67.5% of staff.</li> <li>- Gloves were available for 56.4% of cases.</li> <li>- Disinfectants were available in 51.3% of cases.</li> </ul>	<p>To improve HIV/AIDS prevention, care, and support:</p> <ul style="list-style-type: none"> <li>- medical training needs to include preventive measures to reduce occupational risks</li> <li>- health workers need to be educated about AIDS</li> <li>- safety standards should be established and enforced</li> <li>- supplies and equipment for sterile procedures should be available to protect healthcare staff and patients from HIV transmission.</li> </ul>

## Annex 1 (cont.)

#	Study	Methodology	Impacts	Responses
11.	<p>Societal response, discrimination and stigmatization in Tanzania</p> <p>Masini T and Mwampeta S</p> <p>1993</p> <p>International Conference on AIDS. June 6-11; 9(2): 912</p> <p>Abstract no. PO-D26-4167</p> <p>AIDSLINE ID ICA9.93338088.</p>	<p>To investigate attitudes and knowledge related to discrimination and stigmatization among health personnel towards HIV/AIDS patients, this study sampled knowledge, attitudes, and practices of health workers at the KCMC hospital in northern Tanzania.</p>	<p>Knowledge of AIDS:</p> <ul style="list-style-type: none"> <li>- 94% of the sample are aware of HIV modes of transmission.</li> <li>- 46% believe that limiting the freedom of HIV-infected individuals is the best prevention method.</li> <li>- 48% of the sample had no education and no counseling on AIDS prevention.</li> </ul> <p>Attitudes and practices:</p> <ul style="list-style-type: none"> <li>- 58% of the sample respondents agreed that confidentiality of results is not practiced but 80% feel it should be.</li> <li>- 50% reported cases of HIV patients who were terminated from work and refused housing.</li> <li>- 58% of respondents say expensive drugs should not be given.</li> <li>- 96% do not sympathize with infected sex workers, homosexuals, or drug abusers.</li> <li>- 72% said patients refuse to agree they have AIDS for fear of discrimination rather than</li> </ul>	<p>Training should be given to health personnel in order to:</p> <ul style="list-style-type: none"> <li>- improve the care and support for people infected with HIV/AIDS</li> <li>- improve counseling skills on AIDS prevention and treatments</li> <li>- comply with and enforce protocols on confidentiality</li> <li>- counsel them in how to interact with stigmatized groups such as sex workers, homosexuals, and drug abusers.</li> </ul>



#	Study	Methodology	Impacts	Responses
12.	<p>HIV/AIDS care givers in rural areas are not informed/equipped and are in danger of being infected</p> <p>Onyango D, Ouko M, Odhiambo D, Akinyi F, and Chepkemboi J</p> <p>1996</p> <p>International Conference on AIDS. July 7-12; 11(2): 181</p> <p>Abstract no. We.D. 3736</p> <p>AIDSLINE ID: ICA11/96924050.</p>	<p>An impact assessment of community-level providers was conducted among health providers (mainly nurses, teachers, church leaders, and farmers) from rural Kenya whereby participants developed role plays to show what they had learned in five days of training. Interviews were also conducted with these trainees to determine lessons learned in providing home-care counseling.</p>	<p>Three months after the five-day training, each group of community-level women reported they were able to train at least 500 people about AIDS.</p> <p>Findings reveal that:</p> <ul style="list-style-type: none"> <li>- by including people living with AIDS in the groups, fear and stigma associated with the disease dissipated</li> <li>- supply of training materials, gloves, and disinfectants were problematic.</li> </ul>	<p>The community must be involved in the provision of home care because the community:</p> <ul style="list-style-type: none"> <li>- knows the culture and customs</li> <li>- can reach large numbers of people with information on HIV/AIDS</li> <li>- can serve as a decentralized level of service provision.</li> </ul> <p>Community workers need training materials translated into local languages.</p>

Annex 1 (cont.)

#	Study	Methodology	Impacts	Responses
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13.	<p>Community-based care and support services in South Africa</p> <p>Russell M, Centre for Health Policy, U. of Witwatersrand, Johannesburg, South Africa</p> <p>Paper presented at XIII International AIDS Conference 2000.</p>	<p>A literature review, interviews with 69 people, and site visits to 19 programs were conducted as a rapid appraisal to understand service availability, appropriateness, and challenges as well as needs of persons living with AIDS.</p> <p>Key informants included:</p> <ul style="list-style-type: none"> <li>- persons living with AIDS</li> <li>- providers</li> <li>- activists</li> <li>- government representatives.</li> </ul>	<p>Due to the limited amount of financial, human, and material resources, many community-based organizations are ill-equipped to provide quality care services.</p> <p>Challenges to service provision include:</p> <ul style="list-style-type: none"> <li>- denial</li> <li>- confidentiality/disclosure</li> <li>- poverty</li> <li>- lack of resources and capacity</li> <li>- insensitive healthcare workers</li> <li>- reluctant community involvement.</li> </ul>	<p>The health sector needs to:</p> <ul style="list-style-type: none"> <li>- develop standards and guidelines for care</li> <li>- mobilize community support</li> <li>- provide training and capacity building to community-based organizations and NGOs</li> <li>- coordinate programs</li> <li>- assure that persons living with AIDS receive quality care cost-effectively.</li> </ul>
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#	Study	Methodology	Impacts	Responses
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14.	<p>The introduction of rapid HIV testing at the primary health care level in rural South Africa: Will the system cope?</p> <p>Makhubele B and Pronky PM, Health Systems Development Unit, Acornhoek, South Africa</p> <p>Paper presented at XIII International AIDS Conference 2000.</p>	<p>Focus groups and semi-structured interviews were held with health workers performing HIV testing and counseling in the Agincourt sub-district of the rural Northern Province of South Africa, where there is a national HIV/TB pilot initiative site.</p>	<p>A significant proportion of clients who come for voluntary counseling and testing services do not follow-up to obtain test results.</p>	<p>Health providers need to be trained to provide effective counseling prior to and after HIV/AIDS testing.</p> <p>Linkages need to be developed between testing sites and the community for referral of suspected HIV/AIDS cases and for follow-up on counseling and treatment of opportunistic infections.</p> <p>Voluntary counseling and testing needs to be integrated into a core package of primary healthcare services.</p>
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## Annex 2: Assessment tools for human resources in the health sector

#	Reference	Purpose	Description	Use To Date
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<p>1.</p> <p>“AIDS Toolkit:” Toolkit resources for impact assessment and planning responses of government sectors</p> <p>Prepared by: Abt Associates South Africa Inc., and the Health Economics and HIV/AIDS Research Division of the University of Natal. Input provided by the World Bank and others at Durban workshop in June 1999.</p>	<p>This is a set of toolkits to facilitate the ability of government ministries to respond to HIV/AIDS.</p> <p>All government sectors require sector-specific HIV/AIDS impact assessments to mobilize and plan responses.</p> <p>The toolkits aim:</p> <ul style="list-style-type: none"> <li>- to assist priority sectors to identify areas where they are vulnerable to the impacts of HIV/AIDS</li> <li>- to suggest specific steps that can be taken.</li> </ul>	<p>A basic toolkit template has been developed for seven government ministries:</p> <ul style="list-style-type: none"> <li>- Health</li> <li>- Welfare</li> <li>- Education</li> <li>- Labor</li> <li>- Agriculture</li> <li>- Finance</li> <li>- Housing and Public Works</li> </ul> <p>Toolkits include charted examples of impact assessment requirements, questions, and issues to be considered for identifying actions.</p> <p>Key topics include: capacity issues, prevention of new infections, absenteeism and changes in productivity, recruitment and training needs, improving morale, and developing benefit systems.</p> <p><u>Strengths:</u> These tools specifically address the impact of HIV/AIDS on planning, using a sector-specific approach. Such tools have not always been available or user-friendly. These fill such a gap.</p> <p><u>Limitations:</u> Specific technical expertise is required in their application.</p>	<p>This toolkit has been used in Botswana to:</p> <ul style="list-style-type: none"> <li>- conduct an assessment of the different levels in the health system and their responses to the HIV/AIDS epidemic</li> <li>- assess impacts of HIV/AIDS on the health sector in terms of healthcare needs, resource allocation implications, impacts on health workers and their ability to deliver services</li> <li>- recommend ways in which the health sector can respond to the epidemic.</li> </ul>
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## Annex 2 (cont.)

#	Reference	Purpose	Description	Use To Date
2.	<p>Human Resource Development (HRD) Assessment Instrument</p> <p>Developed by: Family Planning Management Development Unit, Management Sciences for Health, Boston, MA, USA, 1999.</p>	<p>This instrument is designed to help organizations assess their internal human resource management capacity. It can also serve as a basis to develop strategies to improve the human resource system to make it as effective as possible.</p> <p>In an era of health sector reform, human resource issues must be addressed if organizations are to successfully manage decentralization, public/private partnerships, down-sizing and expansion, as well as the drive toward sustainability.</p>	<p>The HRD assessment instrument is intended to provide users with a rapid assessment tool to identify the organization's characteristics with respect to the core functions of a human resource system.</p> <p>The instrument is organized according to six broad areas of HR components (e.g., HR capacity, planning, policy, data, performance management, and training) in a matrix with 4 levels of indicators. There is no scoring. Each level describes an organizational phase of development and provides information that is useful in developing a plan of action to strengthen relevant areas.</p> <p>The self-assessment exercise should be complemented by direct observation of the organization's HR practices and a review of all relevant HRM and personnel documents.</p>	<p>Management Sciences for Health has itself used the HRD Assessment Tool in Zambia, Bolivia, and Albania.</p> <p>In 1998 in Zambia, the Society for Family Health, a family planning NGO with 80 employees in five offices, assessed its human resource capacity as part of its strategic planning. As a result of the process they:</p> <ul style="list-style-type: none"> <li>- created a unit responsible for human resources</li> <li>- developed job descriptions for all staff</li> <li>- reviewed supervisory lines to make changes, and reviewed job classifications and the salary system to ensure equity</li> <li>- developed a personnel manual</li> <li>- developed and implemented a performance management system</li> </ul>

#	Reference	Purpose	Description/methodology	Use To Date/ Impacts
	(continued)		<p><u>Strengths</u>: This tool specifically addresses human resources in health/family planning from a management perspective.</p> <p><u>Limitations</u>: Specific technical expertise is required in their application.</p>	<p>- designed and implemented a staff training plan.</p> <p>In Albania in 1998, Ministry of Health personnel used the tool to rate the Ministry's capacity to manage a decentralized health system. Action steps included extensive training of central-level staff responsible for decentralization.</p> <p>In Bolivia in 1999, a reproductive health NGO developed and began its implementation of new HR systems based on their self-assessment.</p>

**Annex 2 (cont.)**

#	Reference	Purpose	Description	Use To Date/ Impacts
3.	MEASURE Service Provision Assessment	This facility-based assessment instrument has been developed to measure HIV/AIDS services provision.	Results are to be used as a health personnel indicator to measure the percent of graduates of medical schools, nursing schools, and continuing medical education facilities trained in HIV, its diagnosis, and care of common opportunistic infections.	Under development as of June 2000.
4.	MEASURE Blood Safety Draft Protocol	The purpose of this protocol is to check for the structural elements necessary to provide quality counseling and testing services.	A random sample of providers of counseling and testing services (including NGOs, private clinics, and doctors' surgeries) are assessed in terms of trained staff, as well as other minimum conditions to provide quality services (e.g., privacy, referral, quality control of specimen tests).	Under development as of June 2000.

5.	UNAIDS protocol for the evaluation of voluntary counseling and HIV testing (VCT) services	This evaluation protocol aims to measure the proportion of providers of counseling and testing that have the basic structural requirements (including trained staff) to provide quality counseling and HIV testing.	Information not yet available for this review.	Information not yet available for this review.
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